In the Claims:

1. (Currently amended) A method [[(1)]] of restoring partials of a sound signal during harmonic analysis in which the sound signal is divided into time frames to which time/frequency analysis is applied that supplies successive short-term spectra represented by sample frequency frames, the analysis further ~~consisting in~~ including extracting spectrum peaks in the frequency frames and linking them together over time to form partials, wherein the method of restoring a partial between a peak P_i and a peak P_{i+N} whose frequency and phase are known ~~being characterized in that it~~ comprises the steps of:

estimating (2) the frequency $\hat{\omega}$ of each of the missing peaks P_{i+1} to P_{i+N-1} of this partial;

calculating (3) the phase $\hat{\varphi}$ from peak to peak, from the phase of the peak P_i to that of the peak P_{i+N}, for all the frequencies $\hat{\omega}$ previously estimated;

calculating (4) the phase error $err\varphi$ between the calculated phase $\hat{\varphi}$ and the known phase at the same peak P_{i+N}; and

correcting (5) each calculated phase $\hat{\varphi}$ by a value that is a function of the phase error $err\varphi$.

2. (Currently amended) ~~A~~ The method [[(1)]] according to claim 1 ~~for restoring partials of a sound signal~~, wherein the phase $\hat{\varphi}$ is calculated from the following formula, in which φ_i and $\hat{\omega}_i = \omega_i$ are the phase and the frequency of the peak P_i and φ_{i+N} and $\hat{\omega}_{i+N} = \omega_{i+N}$ are the phase and the frequency of the peak P_{i+N}:

$$\hat{\varphi}_{i+n} = \mathrm{mod}\left(\varphi_i + \sum_{j=1}^{n} \frac{\hat{\omega}_{i+j} + \hat{\omega}_{i+j-1}}{2} T, 2\pi\right),\ n = 1, \ldots, N$$

3. (Currently amended) ~~A~~ The method [[(1)]] according to claim 1 ~~or claim 2~~ for restoring partials of a sound signal, wherein the frequency $\hat{\omega}$ of the missing peaks P_{i+1} to P_{i+N-1} is estimated by linear interpolation between the frequencies of the known peaks P_i and P_{i+N}.

4. (Currently amended) ~~A~~ The method [[(1)]] according to claim 1 ~~or claim 2~~ for restoring partials of a sound signal, wherein the frequency $\hat{\omega}$ of the missing peaks P_{i+1} to P_{i+N-1} is estimated by linear past prediction.

5. (Currently amended) ~~A~~ The method [[(1)]] according to claim 1 ~~or claim 2~~ for restoring partials of a sound signal, wherein the frequency $\hat{\omega}$ of the missing peaks P_{i+1} to P_{i+N-1} is estimated by linear future prediction.

6. (Currently amended) ~~A~~ The method [[(1)]] according to claim 1 ~~or claim 2~~ for restoring partials of a sound signal, wherein the frequency $\hat{\omega}$ of the missing peaks P_{i+1} to P_{i+N-1} is estimated by weighted combination of linear past prediction and linear future prediction.

7. (Currently amended) ~~A~~ The method [[(1)]] according to ~~any preceding~~ claim 1 for restoring partials of a sound signal, further comprising the step of estimating the amplitude of each of the missing peaks P_{i+1} to P_{i+N-1} of the partial by linear interpolation between the amplitudes A of the known peaks P_i and P_{i+N}.

8. (Currently amended) ~~A~~ The method [[(1)]] according to ~~any one of claims 1 to 6~~ claim 1 for restoring partials of a sound signal, further comprising the step of estimating the amplitude of each of the missing peaks P_{i+1} to P_{i+N-1} of the partial by linear past prediction.

9. (Currently amended) ~~A~~ The method [[(1)]] according to ~~any one of claims 1 to 6~~ claim 1 for restoring partials of a sound signal, further comprising the step of estimating the amplitude of each of the missing peaks P_{i+1} to P_{i+N-1} of the partial by linear future prediction.

10. (Currently amended) ~~A~~ The method [[(1)]] according to ~~any one of claims 1 to 6~~ claim 1 for restoring partials of a sound signal, further comprising the step of estimating the amplitude of each of the missing peaks P_{i+1} to P_{i+N-1} of the partial by linear past prediction and linear future prediction.

11. (Currently amended) ~~A~~ The method [[(1)]] according to ~~any preceding~~ claim 1 for restoring partials of a sound signal, wherein the phase correction consists in distributing the phase error $err\varphi$ calculated at the time i+N uniformly between all the missing peaks P_{i+1} to P_{i+N-1} of the partial.

12. (Currently amended) ~~A~~ The method [[(1)]] according to claim 11 for restoring partials of a sound signal, wherein the phase correction is determined by the equation:

$$\hat{\varphi}corrected_{i+n} = \mathrm{mod}\left(\hat{\varphi}_{i+n} + err\varphi\frac{n}{N}, 2\pi\right) \quad n = 1, \ldots, N-1$$

13. (Currently amended) ~~A~~ The method [[(1)]] according to claim 12 for restoring partials of a sound signal, wherein the phase correction is determined using the system of equations:

if $\left|\varphi_{i+N} - \hat{\varphi}_{i+N} + 2\pi\right| < \left|\varphi_{i+N} - \hat{\varphi}_{i+N}\right|$, $err\varphi = \varphi_{i+N} - \hat{\varphi}_{i+N} + 2\pi$,

if $\left|\varphi_{i+N} - \hat{\varphi}_{i+N} - 2\pi\right| < \left|\varphi_{i+N} - \hat{\varphi}_{i+N}\right|$, $err\varphi = \varphi_{i+N} - \hat{\varphi}_{i+N} - 2\pi$,

else $\quad err\varphi = \varphi_{i+N} - \hat{\varphi}_{i+N}$.

14. (Currently amended) A sound signal synthesizer for implementing the method according to claim 1, comprising: ~~any preceding claim, characterized in that it comprises~~:

means for estimating the frequency $\hat{\omega}$ of each of the missing peaks P_{i+1} to P_{i+N-1} of the partial;

means for calculating the phase $\hat{\varphi}$ from peak to peak, from the phase of the peak P_i to that of the peak P_{i+N}, for all the frequencies $\hat{\omega}$ previously estimated;

means for calculating the phase error $err\varphi$ between the calculated phase $\hat{\varphi}$ and the known phase at the same peak P_{i+N}; and

means for correcting each calculated phase $\hat{\varphi}$ by a value that is a function of the phase error $err\varphi$.

15. (Currently amended) A computer program product loadable directly into the internal memory of a synthesizer, wherein the synthesizer comprises means for estimating the frequency $\hat{\omega}$ of each of the missing peaks P_{i+1} to P_{i+N-1} of the partial;

means for calculating the phase $\hat{\varphi}$ from peak to peak, from the phase of the peak P_i to that of the peak P_{i+N}, for all the frequencies $\hat{\omega}$ previously estimated;

means for calculating the phase error $err\varphi$ between the calculated phase $\hat{\varphi}$ and the known phase at the same peak P_{i+N}; and

means for correcting each calculated phase $\hat{\varphi}$ by a value that is a function of the phase error $err\varphi$; and

~~or group of synthesizers according to claim 14,~~

wherein the computer program product ~~comprising~~ comprises software code portions for executing steps of ~~a~~ the method ~~(1)~~ according to claim 1 ~~any one of claims 1 to 13~~ when the program is executed on the synthesizer ~~or group of synthesizers~~.

16. (Currently amended) A medium usable in a synthesizer ~~or group of synthesizers according to claim 14~~ on which there is stored a computer program product loadable directly into ~~the~~ an internal memory of the synthesizer wherein the synthesizer comprises:

means for estimating the frequency $\hat{\omega}$ of each of the missing peaks P_{i+1} to P_{i+N-1} of the partial;

means for calculating the phase $\hat{\varphi}$ from peak to peak, from the phase of the peak P_i to that of the peak P_{i+N}, for all the frequencies $\hat{\omega}$ previously estimated;

means for calculating the phase error $err\varphi$ between the calculated phase $\hat{\varphi}$ and the known phase at the same peak P_{i+N}; and

means for correcting each calculated phase $\hat{\varphi}$ by a value that is a function of the phase error $err\varphi$; and

wherein the computer program product comprises ~~or group of synthesizers, comprising~~ software code portions for executing steps of ~~a~~ the method ~~(1)~~ according to claim 1 ~~any one of claims 1 to 13~~ when the program is executed on the synthesizer ~~or group of synthesizers~~.